

[illegible]

```
SSSSSSSS MM MM BBBB BBBB DDDDDDDD EEEEEEEEE FFFFFFFF
SSSSSSSS MM MM BBBB BBBB DDDDDDDD EEEEEEEEE FFFFFFFF
SS      MMMM MMMM BB BB DD DD EE FF
SS      MMMM MMMM BB BB DD DD EE FF
SS      MM MM MM BB BB DD DD EE FF
SS      MM MM MM BB BB DD DD EE FF
SSSSSS MM MM BBBB BBBB DD DD EEEEEEE FFFFFFFF
SSSSSS MM MM BBBB BBBB DD DD EEEEEEE FFFFFFFF
SS      MM MM BB BB DD DD EE FF
SS      MM MM BB BB DD DD EE FF
SS      MM MM BB BB DD DD EE FF
SSSSSS MM MM BBBB BBBB DDDDDDDD EEEEEEEEE FFFFFFFF
SSSSSS MM MM BBBB BBBB DDDDDDDD EEEEEEEEE FFFFFFFF
      ....
      ....
      ....
      ....
```

```
SSSSSSSS DDDDDDDD LL
SSSSSSSS DDDDDDDD LL
SS      DD DD LL
SS      DD DD LL
SS      DD DD LL
SS      DD DD LL
SSSSSS DD DD LL
SSSSSS DD DD LL
SS      DD DD LL
SS      DD DD LL
SS      DD DD LL
SSSSSS DDDDDDDD LLLLLLLLLL
SSSSSS DDDDDDDD LLLLLLLLLL
```



```
module PRTSMB;                /* Private symbiont definitions

/*
/* Symbolic definitions for symbionts
/*
/*   Version 'V03-016'
/*
/******
/*
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/******

/*
/****
/* FACILITY:  Print symbiont
/*
/* ABSTRACT:  Data Structure Definitions
/*
/* ENVIRONMENT: Non-executable.
/*
/* AUTHOR:  Gregory R. Robert, August, 1982
/*
/* MODIFIED BY:
/*
/*   V03-016 GRR0016      Gregory R. Robert      09-May-1984
/*           Move hangup flag into stream flags so that it is not
/*           cleared at start task.
/*
/*   V03-015 GRR0015      Gregory R. Robert      29-Apr-1984
/*           FT2 bugfixes. Added header_built flag, and resorted
/*           various fields.
/*
/*   V03-014 RRB0014      Rowland R. Bradley     27-Apr-1984
/*           Add dummy longwords for future work during Version V04-000
/*           Reorganize the SCB data structure for clarity.
/*
/*   V03-013 RRB0013      Rowland R. Bradley     23-Feb-1984
/*           Add definitions need for enhancement of print symbiont.
```

```
/*      Add constants for accessing and describing these definitions.
/*
/*      V03-012 GRR0009      Gregory R. Robert      29-Sep-1983
/*      Remove carriage control definitions -- now in lib.l32.
/*
/*      V03-011 GRR0008      Gregory R. Robert      28-Sep-1983
/*      Remove use of S_ACCOUNTING_DATA and S_CHECKPOINT_DATA
/*
/*      V03-010 GRR0005      Gregory R. Robert      26-Sep-1983
/*      Move public definitions to SYSDEF.SDL (lib).
/*
/*      3B-009  GRR3009      Gregory R. Robert      23-Aug-1983
/*      Bugfixes, page_setup_modules, form_setup_modules,
/*      sheet_feed, symbiont_initiated_pause_task and stop_stream,
/*      hangup code, read and write item services
/*
/*      3B-008  GRR3008      Gregory R. Robert      03-Aug-1983
/*      Rewrite for new design.
/*
/*      3B-007  GRR3007      Gregory R. Robert      29-Jul-1983
/*      Converted previx from SMB_ to PSM$ and many other revisions.
/*
/*      3B-006  GRR3006      Gregory R. Robert      23-Jun-1983
/*      Basic aligning, positioning, searching, checkpointing,
/*      and module handling.
/*
/*      3B-005  GRR3005      Gregory R. Robert      27-May-1983
/*      Substantially revised for FI1.
/*
/*      3B-004  GRR3004      Gregory R. Robert      24-Feb-1983
/*      Significant revision to accomodate new 3B features.
/*
/*      3B-003  GRR3003      Gregory R. Robert      28-Feb-1983
/*      Specify user parameter items and extend print flags
/*      to include alignment and rewind features.  Removed
/*      extra size definitions now generated by SDL.
/*
/*      3B-002  GRR3002      Gregory R. Robert      19-JAN-1983
/*      Give explicit length to structures declared 'character'
/*
/*
```



```
/* *****
/* *      REMAINING DEFINITIONS ARE VMS-PRTSMB PRIVATE      *
/* *****

/*
/* Miscellaneous constants
/*
constant PSMSK_CHECKPOINT_LIMIT equals 20;
constant PSMSK_DEFBUFFSIZ equals 512;
constant PSMSK_FACILITY equals 262;
constant PSMSK_FIRST_CHAR_USED equals 3;
constant PSMSK_MAXSTREAMS equals 32;
constant PSMSK_NUMOUTBUF equals 3;
/*
constant PSMSK_MAX_PAGE_SIZE equals 8712; /* Largest possible page
constant PSMSK_FORM_132x66 equals 1; /*
constant PSMSK_FORM_132x51 equals 2;
constant PSMSK_FORM_80x66 equals 3;
constant PSMSK_FORM_80x51 equals 4;
constant PSMSK_FORM_40xANY equals 5;
constant PSMSK_FORM_NON_STD equals 0;
/*
/* Standard carriage controls --
/* leading line feed, trailing carriage return
/* leading form feed, trailing carriage return
/* leading form feed
/*

constant PSMSK_LF_CR equals %X0D010A01;
constant PSMSK_FF_CR equals %X0D010C01;
constant PSMSK_FF equals %X00000C01;

/*
/* Format effector codes
/*
constant (
    BS, /* Backspace
    HT, /* Horizontal tab
    LF, /* Line feed
    VT, /* Vertical tab
    FF, /* Form feed
    CR /* Carriage return
) equals 8 increment 1 prefix PSMS$ tag K_CHAR;

constant PSMSK_CHAR_APC equals 095; /* "" Application Program Command
constant PSMSK_CHAR_CSI equals 091; /* "T" Control String Introducer
constant PSMSK_CHAR_DCS equals 080; /* "P" Device Control String
constant PSMSK_CHAR_ESC equals 027; /* "" ESCape
constant PSMSK_CHAR_OSC equals 093; /* "J" Operating System Command
constant PSMSK_CHAR_PM equals 094; /* "A" Privacy Message
constant PSMSK_CHAR_ST equals 092; /* "\" String Terminator
```

```

/*
/*      Structure types
/*
constant (
    DSB,      /* Dynamic string block
    IOB,      /* IO control block
    SCB       /* Stream control block
) equals 1 increment 1 prefix PSM$ tag K_STRUCTURE;

/*
/*      Dynamic String Block
/*
aggregate DSB structure prefix DSB_:
    QLINKS    quadword unsigned;      /* Queue links
    DESC      quadword unsigned;      /* Descriptor
end;

/*
/*      Input Output control Block
/*
aggregate IOB structure prefix IOB_:
    QLINKS    quadword unsigned;      /* Output queue buffer links
    STRUCTURE structure longword unsigned; /* Structure ID
    TYPE      byte unsigned;          /* - type
    LEVEL     byte unsigned;          /* - level
    SIZE      word unsigned;          /* - size
end;
    IOSB      structure quadword unsigned; /* IOSB
    IO_STATUS word unsigned;          /* - word 1
    IO_LENGTH word unsigned;          /* - word 2
    IO_3      word unsigned;          /* - word 3
    IO_4      word unsigned;          /* - word 4
end;
    CONTEXT   address;                /* User context
    ROUTINE   address;                /* Routine address
    BUFFER    quadword unsigned;      /* Buffer descriptor
    RECORD    quadword unsigned;      /* Record descriptor
    FLAGS     structure longword unsigned; /* IOB flags
    CHECKPOINT_PENDING bitfield mask; /* - checkpoint pending
    FLUSH_PENDING bitfield mask;      /* - flushing output stream
    PASSACL   bitfield mask;          /* - write noformat
    PAUSE_PENDING bitfield mask;      /* - respond when IO complete
    FILLER    bitfield length 32-^ fill;
end;
CHECKPOINT_DATA character length 24; /* Checkpoint
end;

/*
/*      Message Item Table entry structure
/*
aggregate MIT structure prefix MIT_:

```



```

TYPE      byte;
constant BYTE      equals 1;
constant WORD      equals 2;
constant LONGWORD  equals 4;
constant QUADWORD  equals 8;

constant AMIC      equals -1;
constant STIC      equals -2;

FLAGS      structure byte unsigned;
RESET      field mask;
FILLER     field length 08-^ fill;
end;

OFFSET      word unsigned;
end;

/*
/*      Service Routine Table entry structure
/*
aggregate SRV structure prefix SRV_:
SERVICE      address;
USER_ARGUMENT longword unsigned;

FLAGS      structure longword unsigned;
USER_ALLOWED  bitfield mask;
USER_SUPPLIED bitfield mask;
FILLER      bitfield length 08-^ fill;
END;

SERVICE_TYPE byte unsigned;
constant (
    FILE_SERVICE,
    FORMAT_SERVICE,
    GENERAL_SERVICE,
    LIBRARY_SERVICE,
    OUTPUT_SERVICE
) equals 1 increment 1;

RESERVED      character length 3 tag Z;
end;

```

```

/* Item type (SIGNED)
/* - byte
/* - word
/* - longword
/* - quadword

/* - dynamic descriptor
/* - static descriptor

/* 10 flags
/* - reset at start of task

/* Offset to item in structure

/* Address of service routine
/* User supplied argument

/* Service flags
/* - user may provide service
/* - user has provided service

/* Type of service routine
/* Define service types
/* - file processor
/* - formatting routine
/* - other input routines
/* - library routines
/* - output routine

/* (fill out the longword)

```

```

/*
/* Stream Control Block
/*
aggregate SCB structure prefix PSM$;

/*
/* Standard structure header
/*
QLINKS      quadword unsigned;      /* Structure queue links
STRUCTURE    structure longword unsigned; /* Structure ID
  TYPE      byte unsigned;          /* - type
  LEVEL     byte unsigned;          /* - level
  SIZE      word unsigned;          /* - size
end;

/*
/* Symbiont state flags
/*
STREAM_FLAGS structure longword unsigned; /* Stream state flags
  ACTIVE      bitfield mask;          /* - Queue is started
  EXPAND_TABS bitfield mask;          /* - Expand tabs to spaces
  HANGUP      bitfield mask;          /* - data set hangup
  JOB_INITIALIZE bitfield mask;       /* - Job reset pending
  FILLER      bitfield length 32-^ fill;
end;

TASK_FLAGS   structure longword unsigned; /* Job state flags
  ALIGN      bitfield mask;          /* - alignment in progress
  BUSY       bitfield mask;          /* - task in progress
  EOF        bitfield mask;          /* - force end of file
  ESCAPE_IN_PROGRESS bitfield mask;   /* - escape sequence in progress
  FAB_VALID  bitfield mask;          /* - FAB connect succeeded
  FIRST_RECORD bitfield mask;        /* - first record of input service
  IMPLICIT_FORMFEED bitfield mask;    /* - implicit formfeed detected
  NEW_RECORD bitfield mask;          /* - new input record
  PAGE_HEADER_BUILT bitfield mask;    /* - Page header template built
  READ_OFFSET bitfield mask;         /* - offset next read
  RESET      bitfield mask;          /* - STOP/NEXT or STOP/RESET in progress
  RESUME_WAIT bitfield mask;         /* - waiting for resume command
  SEARCH_FOR_PAGE bitfield mask;     /* - page search in progress
  SEARCH_FOR_STRING bitfield mask;   /* - string search in progress
  SUPPRESS_OUTPUT bitfield mask;     /* - output suppressed
  FILLER     bitfield length 32 - ^ fill;
end;

/*
/* Message items
/*
ACCOUNTING_DATA quadword unsigned; /* Accounting information
ACCOUNT_NAME    quadword unsigned; /* Account name
AFTER_TIME      quadword unsigned; /* /AFTER
ALIGNMENT_PAGES longword unsigned; /* /ALIGN
BOTTOM_MARGIN   longword unsigned; /* Trailing blank lines
CHARACTERISTICS quadword unsigned; /* /CHARACTERISTICS
CHECKPOINT_DATA quadword unsigned; /* Checkpoint information
CONDITION_VECTOR quadword unsigned; /* Error messages

```


DEVICE_NAME	quadword unsigned;	/* /ON
DEVICE_STATUS	longword unsigned;	/* Device status
ENTRY_NUMBER	longword unsigned;	/* Job entry number
EXECUTOR_QUEUE	quadword unsigned;	/* /QUEUE
FILE_COPIES	longword unsigned;	/* /COPIES
FILE_COUNT	longword unsigned;	/* Current file copy number
FILE_SETUP_MODULES	quadword unsigned;	/* /SETUP (print)
FIRST_PAGE	longword unsigned;	/* /PAGES
FORM_LENGTH	longword unsigned;	/* /LENGTH
FORM_SETUP_MODULES	quadword unsigned;	/* /SETUP (define/form)
FORM_NAME	quadword unsigned;	/* Name of physical form
FORM_WIDTH	longword unsigned;	/* /WIDTH
FILE_IDENTIFICATION	quadword unsigned;	/* Device, fid, and did
FILE_SPECIFICATION	quadword unsigned;	/* File name
JOB_COPIES	longword unsigned;	/* /JOB_COUNT
JOB_COUNT	longword unsigned;	/* Current job copy number
JOB_NAME	quadword unsigned;	/* /NAME
JOB_RESET_MODULES	quadword unsigned;	/* /SEPARATION
LAST_PAGE	longword unsigned;	/* /PAGES
LEFT_MARGIN	longword unsigned;	/* /LEFT MARGIN
LIBRARY_SPECIFICATION	quadword unsigned;	/* /LIBRARY
MAXIMUM_STREAMS	longword unsigned;	/* Maximum streams supported
MESSAGE_VECTOR	quadword unsigned;	/* Error messages to print
NOTE	quadword unsigned;	/* /NOTE
PAGE_SETUP_MODULES	quadword unsigned;	/* To be implemented
PARAMETER_1	quadword unsigned;	/* /PARAMETER
PARAMETER_2	quadword unsigned;	/* /PARAMETER
PARAMETER_3	quadword unsigned;	/* /PARAMETER
PARAMETER_4	quadword unsigned;	/* /PARAMETER
PARAMETER_5	quadword unsigned;	/* /PARAMETER
PARAMETER_6	quadword unsigned;	/* /PARAMETER
PARAMETER_7	quadword unsigned;	/* /PARAMETER
PARAMETER_8	quadword unsigned;	/* /PARAMETER
PRINT_CONTROL	longword unsigned;	/* Printing control
PRIORITY	longword unsigned;	/* Queue priority
QUEUE	quadword unsigned;	/* /QUEUE
REFUSE_REASON	quadword unsigned;	/* Reason task refused
RELATIVE_PAGE	longword;	/* /BACKWARD, /FORWARD values
REQUEST_CONTROL	longword unsigned;	/* Request control
REQUEST_RESPONSE	longword unsigned;	/* Request being responded to
RIGHT_MARGIN	longword unsigned;	/* /RIGHT MARGIN
SEARCH_STRING	quadword unsigned;	/* /SEARCH value
SEPARATION_CONTROL	longword unsigned;	/* Separation control
STOP_CONDITION	longword unsigned;	/* /ABORT or /REQUEUE
TIME_QUEUED	quadword unsigned;	/* Time queued
TOP_MARGIN	longword unsigned;	/* /TOP_MARGIN
UIC	longword unsigned;	/* UIC of submitter
USER_NAME	quadword unsigned;	/* Username
/*		
/* Queue headers		
/*		
BUFFER_QUEUE	quadword unsigned;	/* Buffer queue headers
CHECKPOINT_QUEUE	quadword unsigned;	/* Checkpoint queue headers
INPUT_QUEUE	quadword unsigned;	/* Nested input queue


```

/*
/* Miscellaneous
/*
CHANNEL          longword unsigned;    /* Output channel number
CHECKPOINT       address;              /* Address of checkpoint
COLUMN          longword unsigned;    /* Current column number
CONDITION TEXT   quadword unsigned;   /* Expanded error messages
DEVICE_CLASS     longword unsigned;   /* Device class
DEVICE_TYPE      longword unsigned;   /* Device type
FUNCTION_ARGUMENT longword unsigned;   /* Work area for service calls
IOB             address;              /* I/O block address
ITEM_FLAGS       quadword unsigned;   /* Item flags
KEEP-ALIVE       longword unsigned;   /* Keep alive count
L_MARGIN         longword unsigned;   /* Current left margin
LAST_ENTRY_NUMBER longword unsigned;   /* Entry number of previous job
LIBRARY_INDEX    longword unsigned;   /* Library context
LINE            longword unsigned;   /* Current line number
MODULE_LIST      quadword unsigned;   /* Library module list
MODULE_NAME      quadword unsigned;   /* Current library module
NON_AST_STATUS   longword unsigned;   /* Status from non-ast routines
OUTPUT_BUFFER    quadword unsigned;   /* Output buffer descriptor
OUTPUT_QIOS      longword unsigned;   /* Qio's output
PAGE            longword unsigned;   /* Page number
PAGE_HEADER      quadword unsigned;   /* Page header descriptor
PAGE_LENGTH      longword unsigned;   /* Current Page Length
PAGE_POINTER     address;             /* Address of page array buffer
PAGE_WIDTH       longword unsigned;   /* Current Page Width
PRINT_FLAGS      longword unsigned;   /* Print format flags
RFA             quadword;            /* Record file address
SEARCH_CONTEXT   quadword unsigned;   /* Search context
SERVICE_LIST     longword unsigned;   /* Service routines to execute
SERVICE_OPEN     longword unsigned;   /* Service routines that are open
SERVICE_STATUS   longword unsigned;   /* Service completion status
START_PAGE       longword unsigned;   /* Start when reached
STOP_PAGE        longword unsigned;   /* Stop when reached
STREAM_INDEX      longword unsigned;   /* Job controller stream
T_MARGIN         longword unsigned;   /* Current top margin
TIME_PRINTED     quadword unsigned;   /* Time printed
USER_BUFFER      quadword unsigned;   /* Input buffer descriptor
XLATE_TABLE      address;            /* Translation table

```

```

/*
/* RMS block structure pointers
/*

```

```

FAB             address;    /* FAB block
NAM             address;    /* NAM block
RAB             address;    /* RAB block
XABDAT          address;    /* XABDAT block
XABFHC          address;    /* XABFHC block
XABPRO          address;    /* XABPRO block

```

```

/*
/* No longword alignment past here
/*
/*

```



```
/* Input service context area
```

```
/*
```

```
SERVICE_CONTEXT structure;
```

```
INPUT_RECORD      quadword unsigned; /* Input record descriptor
RECORD_HEADER     longword unsigned; /* Input record header
RECORD_NUMBER     longword unsigned; /* Current record number
USER_RECORD       quadword unsigned; /* User record desc
CARCON            structure longword unsigned; /* Carriage control
PREFIX_COUNT      byte unsigned; /* - prefix byte count
PREFIX_CHAR       byte unsigned; /* - prefix character
POSTFIX_COUNT     byte unsigned; /* - postfix byte count
POSTFIX_CHAR      byte unsigned; /* - postfix record character
```

```
end;
```

```
CC_TYPE           byte unsigned; /* Carriage control type
```

```
SERVICE_INDEX     byte unsigned; /* Input service index
```

```
end;
```

```
ACCOUNTING_AREA   character length 16; /* Accounting data
```

```
CONDITION_AREA   character length 4 * 5; /* Condition data
```

```
CHECKPOINT_DEPTH byte; /* Number of checkpoints saved
```

```
ESCAPE_STATE     byte unsigned; /* Escape sequence state
```

```
FILE_BURST_CHAR  byte unsigned; /* Burst char for flag page
```

```
INPUT_DEPTH      byte; /* Number of services "pushed"
```

```
JOB_BURST_CHAR   byte unsigned; /* Burst char for job page
```

```
STATE            byte unsigned; /* Symbiont state
```

```
/*
```

```
/* Patch area
```

```
/*
```

```
dummy_0          longword unsigned;
```

```
dummy_1          longword unsigned;
```

```
dummy_2          longword unsigned;
```

```
dummy_3          longword unsigned;
```

```
dummy_4          longword unsigned;
```

```
dummy_5          longword unsigned;
```

```
dummy_6          longword unsigned;
```

```
dummy_7          longword unsigned;
```

```
dummy_8          longword unsigned;
```

```
dummy_9          longword unsigned;
```

```
/*
```

```
/* NB: The user context area begins at the end of the SCB and extends for
```

```
/* a user defined amount. No SCB definitions may be placed after it.
```

```
/*
```

```
USER_CONTEXT_AREA longword unsigned tag R; /* User context area
```

```
end;
```

```
end_module;
```


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